

Virginia Lake Sockeye Juvenile Survival and Adult Escapement Monitoring

Abstract: Virginia Lake adult sockeye escapement was monitored at a top-of-fishpass weir on Mill Creek in 2001 and 2002. A mark-recapture experiment was attempted with visual counts of tagged fish in 2001 and by seining in 2002 to verify weir counts. Nutrient enrichment of the lake to boost primary production occurred in both 2001 and 2002. Lake physical, chemical, and biological parameters were monitored concurrently with the enrichment in both years, as well. Fall hydroacoustic surveys attempted to estimate pelagic fish abundance. The weir escapement was 1,003 in 2001 and 2,073 in 2002, far below the 10,000-40,000 fish returns estimated at the onset of the Virginia Lake enhancement program in 1986. Escapement verification at the lake was unsuccessful, in part, due to extremely low counts observed at the lake. Nutrient enrichment had a dramatic positive effect on primary and, subsequently, secondary production. Hydroacoustic surveys estimated 56,000 sockeye salmon fry in 2001 and only 32,000 sockeye salmon fry in 2002. Our observations identified several potential bottlenecks limiting sockeye salmon success in Virginia Lake that warrant further investigation.

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